

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the captioned patent application:

Listing of Claims:

1. (Original) An apparatus for processing an ambient sound signal including: input means for receiving the ambient sound signals; means for performing a Fourier transform on the input signal and providing an input spectrum having discrete frequency components each including a coefficient defining the magnitude of the component; means for multiplying the magnitude coefficients by a predetermined gain value and providing magnitude adjusted frequency components; means for comparing the amplitude of the magnitude adjusted frequency components with predetermined values; means for attenuating the magnitude of those adjusted frequency components whose magnitude is greater than the predetermined values; and output means for an output spectrum signal including the frequency components and respective adjusted and attenuated magnitudes.
2. (Original) The apparatus according to claim 1, wherein the means for performing a Fourier transform, the means for multiplying the magnitude coefficients, the means for comparing the amplitude, and the means for attenuating the amplitude are implemented by a programmed microprocessor coupled to memory storage means.
3. (Original) The apparatus according to claim 2, wherein the predetermined values are based upon hearing response parameters.
4. (Original) The apparatus according to claim 3, wherein the hearing response parameters comprise any one or more of loudness discomfort levels, maximum comfortable levels, comfortable levels, optimum audibility levels, and threshold levels for each of the plurality of frequency components.

5. (Original) The apparatus according to claim 1, further including means to perform an inverse Fourier transform on the output spectrum signal.

6. (Original) The apparatus according to claim 5, further including a digital to analogue converter to convert the output of the inverse Fourier transform to an analogue signal.

7-9. (Cancelled)

10. (Original) The apparatus according to claim 1, incorporated as the front-end of a further signal processor.

11. (Original) The apparatus according to claim 1, wherein the microprocessor is programmed to calculate and store in memory, distribution values indicative of the distribution of the magnitude of each of said plurality of adjusted frequency components over a period of time.

12. (Original) The apparatus according to claim 11, wherein the microprocessor is programmed to determine and store in memory, one or more distribution values which are approximately the 30th, 70th, 90th and 98th percentiles of the magnitude of each of said plurality of adjusted frequency components over a period of time.

13. (Original) The apparatus according to claim 1, wherein the means for attenuating includes a plurality of limiting means responsive to said magnitude adjusted analysis signals and arranged to limit the power of each of said signals to below a corresponding plurality of predetermined levels.

14-37. (Cancelled)

38. (Original) An apparatus for processing an ambient sound signal including: a) a frequency analysis means arranged to generate a plurality of analysis signals corresponding to said ambient signal; b) a magnitude adjustment means coupled to the frequency analysis means and arranged

to adjust the magnitude of each of said analysis signals to produce a plurality of magnitude adjusted analysis signals; c) a distribution estimation means responsive to said plurality of magnitude adjusted analysis signals and arranged to generate distribution values characteristic of the amplitude distribution of each of the said plurality of magnitude adjusted analysis signals over a period of time; and d) a comparison means coupled to the distribution estimation means and arranged to perform comparisons of said distribution values with predetermined hearing response parameters, said comparison means controlling said magnitude adjustment means on the basis of said comparisons; wherein the magnitude adjustment means, the distribution estimation means and the comparison means are implemented by a programmed microprocessor coupled to memory storage means, said memory means storing the hearing response parameters and include at least one the maximum comfortable levels, optimum audibility levels and threshold levels for each of the plurality of frequency components.

39. (Cancelled)